

Form PTO-1449

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICEATTY. DOCKET NO.
MI22-1322SERIAL NO.
09/512,449

LIST OF ART CITED BY APPLICANT

(Use several sheets if necessary)

APPLICANT

Vishnu K. Agarwal

FILING DATE
February 23, 2000

GROUP

U.S. PATENT DOCUMENTS

Miner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
MDP	AA	4,333,808	06/08/82	Bhattacharyya et al.	204	192	
MDP	AB	4,464,701	08/07/84	Roberts et al.	361	313	
MDP	AC	4,891,682	01/02/90	Yusa et al.	357	030	
MDP	AD	4,952,904	08/28/90	Johnson et al.	338	036	
MDP	AE	5,053,917	10/01/91	Miyasaka et al.	361	321	
MDP	AF	5,079,191	01/07/92	Shinriki et al.	437	235	
MDP	AG	5,111,355	05/05/92	Anand, deceased, et al.	361	313	
MDP	AH	5,142,438	08/25/92	Reinberg et al.	361	313	
MDP	AI	5,191,510	03/02/93	Huffman	361	313	
MDP	AJ	5,234,556	08/10/93	Oishi et al.	204	157.51	
MDP	AK	5,279,985	01/18/94	Kamiyama	437	060	

FOREIGN PATENT DOCUMENTS

		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
MDP	AL	1-222469 A		JAPAN			abstract	
MDP	AM	403209869 A	09/12/91	JAPAN (Kamiyama)			abstract	
MDP	AN	04162527 A	06/08/92	JAPAN			abstract	
MDP	AO	05-221644	08/31/93	JAPAN (Munehiro et al.)			abstract	
MDP	AP	405343641 A	12/1993	JAPAN			abstract	

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)

MDP	AR		ABSTRACT, "Double <u>high dielectric constant capacitor</u> mfr. - involves despositing titanium di:oxide and tantalum pent:oxide layers on wafer site silicon then annealing wafer", Document No. 106, File No. DWPI, Pub-No. RD 299041 A (March 10, 1989).
MDP	AS		CHANG, Peng-Heng, et al., "Structurs of tantalum pentoxide thin films formed by reactive sputtering of Ta metal", Thin Solid Films 258, Pgs. 56-63 (1995).
MDP	AT		EIMORI, T., et al., "A Newly Designed Planar Stacked Capacitor Cell with High dielectric Constant Film for 256Mbit DRAM", 631-634 IEDM, Nos. 26.3.1-26.3.4 (1993).

EXAMINER

Marco S. Liguori-Pereira

DATE CONSIDERED

10/13/2000

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Form BTO-1449 U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. MI22-1322		SERIAL NO. 09/512,449	
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Vishnu K. Agarwal	
FILING DATE February 23, 2000				GROUP 2823	

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 PATENT & TRADEMARK OFFICE

U.S. PATENT DOCUMENTS							
*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
MDP	AA	5,279,985	01/18/94	Kamiyama	437	060	
MDP	AB	5,293,510	03/08/94	Takenaka	257	295	
MDP	AC	5,316,982	05/31/94	Taniguchi	437	236	
MDP	AD	5,330,935	07/19/94	Dobuzinsky et al.	437	239	
MDP	AE	5,335,138	08/02/94	Sandhu et al.	361	303	
MDP	AF	5,348,894	09/20/94	Gnade et al.	437	012	
MDP	AG	5,352,623	10/04/94	Kamiyama	437	052	
MDP	AH	5,362,632	11/08/94	Mathews	437	047	
MDP	AI	5,372,859	12/13/94	Thakoor	427	551	
MDP	AJ	5,397,446	03/14/95	Ishihara et al.	204	192.18	
MDP	AK	5,442,213	08/15/95	Okudaira et al.	257	310	

FOREIGN PATENT DOCUMENTS								
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MDP	AL	06-021333	01/28/94	JAPAN (Kato)			abstract	
	AM							
	AN							
	AO							
	AP							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
MDP	AR		FAROOQ, M.A., et al., "Tantalum nitride as a diffusion barrier between Pd ₂ Si and CoSi ₂ and aluminum", J. Appl. Phys.,
			Vol. 65, No. 8, Pgs. 3017-3022 (April 15, 1989).
MDP	AS		FAZAN, P.C., et al., "A High-C Capacitor (20.4 fF/μm ²) with Ultrathin CVD-Ta ₂ O ₅ Films Deposited on Rugged Poly-Si for High
			Density DRAMs", 263-266 IEDM, Nos. 10.2.1-10.2.4 (1992).
MDP	AT		IBM TECHNICAL DISCLOSURE BULLETIN, "Process for Selective Etching of Tantalum Oxide", Vol. 27, No. 12 (May 1985).

EXAMINER <i>Thomas J. Liguori-Liguori</i>	DATE CONSIDERED 10/13/2000
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				APPLICANT Vishnu K. Agarwal FILING DATE February 23, 2000 GROUP 2002				
U.S. PATENT DOCUMENTS								
Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate		
MDP	AA	5,466,629	11/14/95	Mihara et al.	437	060		
MDP	AB	5,468,687	11/21/95	Carl et al.	437	235		
MDP	AC	5,471,364	11/28/95	Summerfelt et al.	361	321.4		
MDP	AD	5,504,041	04/02/96	Summerfelt	437	235		
MDP	AE	5,508,953	04/16/96	Fukuda et al.	365	145		
MDP	AF	5,510,651	04/23/96	Maniar et al.	257	751		
MDP	AG	5,552,337	09/03/96	Kwon et al.	437	060		
MDP	AH	5,555,486	09/10/96	Kington et al.	361	305		
MDP	AI	5,561,307	10/01/96	Mihara et al.	257	295		
MDP	AJ	5,585,300	12/17/96	Summerfelt	437	060		
MDP	AK	5,617,290	04/01/97	Kulwicki et al.	361	321.4		
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
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	AL							
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	AN							
	AO							
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OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
MDP	AR		KAMIYAMA, Satoshi, et al., "Highly Reliable 2.5nm Ta ₂ O ₅ Capacitor Process Technology for 256Mbit DRAMs", 827-830 IEDM,					
			Nos. 32.2.1-32.2.4 (1991).					
MDP	AS		KAMIYAMA, Satoshi, et al., "Ultrathin Tantalum Oxide Capacitor Dielectric Layers Fabricated Using Rapid Thermal Nitridation					
			prior to Low Pressure Chemical Vapor Desposition", J. Electrochem. Soc., Vol. 140, No. 6, Pgs. 1617-1625 (June 1993).					
MDP	AT		LESAICHERE, P-Y, et al., "A Gbit-scale DRAM stacked capacitor technology with ECR MOCVD SrTiO ₃ and RIE patterned					
			RuO ₂ /TiN storage nodes", 831-834 IEDM, Nos. 34.1.1-34.1.4 (1994).					
EXAMINER <i>Charles S. Piquard-Cuyod</i>				DATE CONSIDERED <i>10/13/2000</i>				
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Vishnu K. AgarwalFILING DATE
February 23, 2000GROUP ~~2820~~

U.S. PATENT DOCUMENTS

*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
MDP	AA	5,641,702	06/24/97	Imai et al.	438	396	
MDP	AB	5,654,222	08/05/97	Sandhu et al.	438	003	
MDP	AC	5,663,088	09/02/97	Sandhu et al.	438	396	
MDP	AD	5,668,040	09/16/97	Byun	438	396	
MDP	AE	5,688,724	11/18/97	Yoon et al.	437	235	
MDP	AF	5,728,603	03/17/98	Emesh et al.	437	235	
MDP	AG	5,741,626	04/21/98	Jain et al.	430	314	
MDP	AH	5,780,359	07/14/98	Brown et al.	438	659	
MDP	AI	5,786,248	07/28/98	Schuegraf	438	240	
MDP	AJ	5,790,366	08/04/98	Desu et al.	361	305	
MDP	AK	5,798,903	08/25/98	Dhote et al.	361	321.4	

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OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)

MDP	AR		McINTYRE, Paul C., et al., "Kinetics and mechanisms of TIN oxidation beneath thin films", J. Appl. Phys., Vol. 82, No. 9, Pgs. 4577-4585 (November 1, 1997).
MDP	AS		ONISHI, Shigeo, et al., "A Half-Micron Ferroelectric Memory Cell Technology with Stacked Capacitor Structure", 843-846 IEDM, Nos. 34.4.1-34.4.4 (1994)
MDP	AT		SHINRIKI, Hiroshi, et al., "UV-O ₃ and Dry-O ₂ : Two-Step Annealed Chemical Vapor-Deposited Ta ₂ O ₅ Films for Storage Dielectrics of 64-Mb DRAM's", IEEE Transactions on Electron Devices, Vol. 38, No. 3, Pgs. 455-462 (March 1991).

EXAMINER

Sharon S. Lizaund-Francis

DATE CONSIDERED

10/13/2000

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<div style="border: 1px solid black; border-radius: 50%; padding: 10px; display: inline-block; text-align: center;"> JUL 17 2000 PATENT & TRADEMARK OFFICE 63 </div>		FILING DATE February 23, 2000	GROUP <u>282</u>

U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
MDP	AA	5,807,774	Desu et al.	438	240		
MDP	AB	5,814,852	Sandhu et al.	257	310		
MDP	AC	5,834,345	Shimizu	438	158		
MDP	AD	5,837,591	Shimada et al.	438	381		
MDP	AE	5,837,593	Park et al.	438	396		
MDP	AF	5,838,035	Ramesh	257	295		
MDP	AG	5,843,830	Graettinger et al.	438	396		
MDP	AH	5,844,771	Graettinger et al.	361	303		
MDP	AI	5,872,696	Peters et al.	361	305		
MDP	AJ	5,888,295	Sandhu et al.	117	089		
MDP	AK	5,899,740	Kwon	438	627		

FOREIGN PATENT DOCUMENTS							
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OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)		
MDP	AR	WOLF, Stanley, "Semiconductor Memory Process Integration", Silicon Processing For The VLSI Era, Vol. II, Pgs. 589-592 (c. 1990).
MDP	AS	YAMAGUCHI, Hiromu, et al., "Structural and Electrical Characterization of SrTiO ₃ Thin Films Prepared by Metal Organic Chemical Vapor Deposition", Jpn. J. Appl. Phys., Vol. 32, Pt. 1, No. 9B, Pgs. 4069-4073 (September 1993).
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EXAMINER <i>Charles S. Sigaud-Bruneau</i>	DATE CONSIDERED <i>10/13/2000</i>
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U.S. PATENT DOCUMENTS							
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate	
MDP	AA	5,910,218	Park et al.	118	719		
MDP	AB	5,910,880	DeBoer et al.	361	311		
MDP	AC	5,916,634	Fleming et al.	427	255.2		
MDP	AD	5,919,531	Arkles et al.	427	576		
MDP	AE	5,930,584	Sun et al.	438	003		
MDP	AF	5,933,316	Ramakrishnan et al.	361	311		
MDP	AG	5,955,758	Sandhu et al.	257	306		
MDP	AH	5,970,369	Hara et al.	438	488		
MDP	AI	5,985,714	Sandhu et al.	438	253		
MDP	AJ	5,990,507	Mochizuki et al.	257	295		
MDP	AK	6,010,744	Buskirk et al.	427	081		

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EXAMINER <i>Marcel L. Lizard-Correa</i>	DATE CONSIDERED <i>10/13/2000</i>
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U.S. PATENT DOCUMENTS

*Examiner Initial		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
MDP	AA	6,015,989	01/18/00	Horikawa et al.	257	309	
MDP	AB	6,017,789	01/25/00	Sandhu et al.	438	240	
MDP	AC	6,027,969	02/22/00	Huang et al.	438	254	
MDP	AD	6,028,360	02/22/00	Nakamura et al.	257	758	
MDP	AE	6,046,469	04/04/00	Yamazaki et al.	257	306	
MDP	AF	6,051,859	04/18/00	Hosotani et al.	257	306	
	AG						
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Marcel D. Ligand-Lewis

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MDP	AA	08/994,054		Parekh, et al.			12/19/97
MDP	AB	09/033,063		Al-Shareef, et al.			02/28/98
MDP	AC	09/033,064		Al-Shareef, et al.			02/28/98
MDP	AD	09/058,612		Agarwal, et al.			04/10/98
MDP	AE	09/059,057		Agarwal, et al.			04/10/98
MDP	AF	09/074,638		Agarwal, et al.			05/07/98
MDP	AG	09/083,257		Al-Shareef, et al.			05/21/98
MDP	AH	09/086,389		Sandhu, et al.			05/28/98
MDP	AI	09/098,035		DeBoer, et al.			06/15/98
MDP	AJ	09/122,473		Schuegraf			07/23/98
MDP	AK	09/137,780		Al-Shareef, et al.			08/20/98

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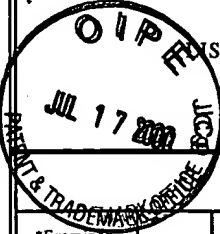
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U.S. PATENT DOCUMENTS								
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate		
MDP	AA	09/185,412	Graettinger, et al.			11/03/98		
MDP	AB	09/229,518	DeBoer, et al.			01/13/99		
MDP	AC	09/512,149	Agarwal			02/23/00		
	AD							
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<i>Harold S. Lippard - Group</i>				<i>10/13/2000</i>				
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